

**DUAL-MODE TRANSCEIVER FOR INDOOR AND OUTDOOR  
ULTRA WIDEBAND COMMUNICATIONS**

**Abstract of the Disclosure**

A dual-mode ultra wideband communications (UWB) transceiver is provided for implementing two disparate systems of indoor and outdoor operation according to some embodiments. The dual-mode UWB transceiver may be utilized to selectively transmit and receive UWB signals in a way either indoor or outdoor systems. During indoor or outdoor operation mode, the dual-mode UWB transceiver sends and receives the indoor or outdoor UWB signals using the indoor or outdoor programmable filters. In the transmitter mode, the dual-mode UWB transceiver can select one of the two digital enlarged band transmitter FIR filters with coupling to one common digital rejected image FIR filter to substitute one narrow band digital interpolation transmitter FIR filter for the indoor or outdoor UWB operation. In the receiver mode, the dual-mode UWB transceiver can select one of two programmable digital filters used in either indoor or outdoor UWB signals.